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It is the purpose of these specifications to describe a double boiler type melter applicator that is specifically designed for and shall be capable of heating and applying all grades of asphalt rubber sealant, asphalt fiber blends and specification hot pour crack and joint sealants without further equipment modification. This unit shall be the manufacturer's current production model.

	<u>Comply</u>	<u>Does Not Comply</u>
1. GENERAL SPECIFICATIONS		
A. The machine shall be capable of starting at ambient temperature and bringing the sealant material up to application in less than one hour at 70°F ambient temperature	_____	_____
B. All qualified bidders must have and maintain a complete inventory of repair parts and have experienced factory trained service personnel for this equipment.	_____	_____
C. A comprehensive safety manual, operation/maintenance and DVD manual shall be supplied with each unit.	_____	_____
D. A factory trained person shall be made available for initial start-up and training in the operation of the melter	_____	_____
E. Temperature indicating devices shall have intervals no greater than 1°F and shall be calibrated as required to assure accuracy.	_____	_____
F. The melter shall have continuous sealant agitation and a mixing system to provide uniform viscosity and temperature of material being applied.	_____	_____
2. REQUIRED SAFETY FEATURES		
A. The unit shall have safety shut-off on the loading door that automatically stops the agitator when the lid is opened. When equipped with a conveyor loading option the safety shut-off will lock out the conveyor operation during loading.	_____	_____
B. The heat transfer of oil shall adequately and efficiently bring the sealant material to application temperature without the use of a heat transfer oil circulation pump. This eliminates the potential exposure of personnel to pressurized hot heat transfer oil.	_____	_____
Other: _____	_____	_____
_____	_____	_____

<u>Comply</u>	<u>Does Not Comply</u>
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3. TOWING FRAME AND JACK

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|--|-------|-------|
| <p>A. This unit shall be trailer mounted. The longitudinal side frames and tongue members of the trailer shall be of one continuous piece construction composed of hot rolled steel channel having the minimum dimensions of 5 inches (12.7cm) depth, .190 inch (.483 cm) web thickness with 1.75 inch (4.445 cm) flange width.</p> | _____ | _____ |
| <p>B. The configuration of the channels shall be cold formed with the flanges on the outside resulting in a one-piece frame member with no cross welding of or on the flanges to avoid any possibility of flange stress cracking.</p> | _____ | _____ |
| <p>C. The tongue shall be equipped with an appropriate heavy-duty ball or pintle hitch. It shall be adjustable in height above ground level from a minimum of 14 inches (35.6 cm), to a maximum of 32 inches (81.4 cm), permitting practically level towing with a wide range of vehicles. The towing hitch shall be bolted to the hitch plate for easy height adjustment and/or conversion to other type hitches.</p> | _____ | _____ |
| <p>D. A screw post tongue jack shall be furnished. It shall be a heavy-duty type with a load capacity of 5,000 pounds (2,268 kg) and it shall be side mounted and swing away for positive road clearance while under tow</p> | _____ | _____ |
| <p>Other: _____
_____</p> | _____ | _____ |

4. TRAILER RUNNING GEAR

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|---|-------|-------|
| <p>A. The unit shall be equipped with an independent rubber torsional suspension having a safe load capacity of 5,200 pounds (2,358.7 kg), electric brakes, drop center disc wheels and ST225/75 R15 tubeless tires (Load Range D). Trailers with springs and shackles are unacceptable as they require more maintenance and reduce ground clearance.</p> | _____ | _____ |
| <p>B. The melter shall have dual LED taillights, stoplights, turn signals. The lighting shall be ICC approved. A license plate holder shall be attached to the driver's side taillight.</p> | _____ | _____ |
| <p>C. All melter fluid tanks shall be positioned no lower than the deck level and be mounted on the top of the channel frame members to assure proper ground clearance. Units that have components that extend below the trailer frame are unacceptable.</p> | _____ | _____ |
| <p>D. The unit shall also be equipped with two safety chains not less than 48 inches (121.9 cm) of .38 inch (.97 cm) coil proof chain, attached to the tongue with a drilled type clevis pin on the end attached to the frame and screw type clevis pin on the opposite end.</p> | _____ | _____ |
| <p>E. Total shipping weight is approximately 4,180 pounds (1,896 kg). Gross vehicle weight shall be 6,100 pounds (2,766.9 kg).</p> | _____ | _____ |
| <p>Other: _____
_____</p> | _____ | _____ |

<u>Comply</u>	<u>Does Not Comply</u>
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5. HEATING TANK

- A. The material tank shall be cylindrical with a minimum of 40.38 inches (102.5 cm) in diameter by 25.18 inches (63.96 cm) deep having a capacity of 132 gallons (500 l) at ambient temperature. Oval or square sided tanks are unacceptable as they allow for uneven agitation resulting in a non-homogenous sealant and uneven heating of sealant.
- B. The tank will have a rear discharge to the pump and rear outlet. A double boiler type jacket with internal oil column shall create a reservoir that shall hold a minimum of 21 gallons (79.47 l) of heat transfer oil at 70°F (21°C). (Note: At 500°F (260°C) the heating oil will expand approximately 18%).
- C. The jacket shall wrap around 100% of the outside area of the circular material tank and bottom and allow for complete circulation of the heated transfer oil.
- D. The heat transfer oil tank design shall provide a center tower of a minimum 18 inches (7.08 cm) in height to provide efficient melting and uniform product heating. At no point in the tank shall there be a distance of greater than 8 inches (20.32 cm) from a heat surface.
- E. The tank and jacket shall be made of not less than 3/16 inch (.94 cm) rolled sheet steel.
- F. There shall be a plug to allow the entire heat transfer oil system to be drained.
- G. The heat transfer oil shall be of ISO grade 68.
- H. The efficiency rating shall be a minimum of 96% as determined by the ratio of the material tank surface area to the HTO tank surface area. Units with an efficiency ratio of less than 96% are unacceptable.

Other: _____

6. EXPANSION TANK

- A. A vented expansion tank for heat transfer oil. Overflow down tubes are unacceptable.

Other: _____

<u>Comply</u>	<u>Does Not Comply</u>
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7. HYDRAULIC SYSTEM

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|---|-------|-------|
| A. The hydraulic system shall incorporate a hydraulic pump to power the agitation and pumping system. This pump shall be directly coupled to the engine. Belt driven hydraulics is unacceptable. | _____ | _____ |
| B. All valves shall be solenoid operated by a toggle switch and wand handle switch. | _____ | _____ |
| C. The controls will allow for bi-directional operation of the sealant pump and agitator. | _____ | _____ |
| D. The flow control valve will be mounted on the rear of the unit to allow the operator to adjust pump operational speed. | _____ | _____ |
| E. All controls shall be mounted at the curb side rear on the trailer for easy access by the operator. Hydraulic controls located at the side or forward portion of the trailer are unacceptable. | _____ | _____ |
| F. The minimum 30 gallon (136.37l) hydraulic tank will be equipped with an internal 10 micron full flow filter. The filter shall be equipped with a restriction indicator to indicate the need for service. A sight gauge level indicator equipped with a thermometer to measure oil temperature will be mounted on the tank and located where it is easily viewed. | _____ | _____ |
| G. The unit shall have a self-contained air to oil hydraulic cooler with an electric fan to maintain proper hydraulic oil temperatures. | _____ | _____ |
| Other: _____
_____ | _____ | _____ |

8. TANK INSULATION

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|---|-------|-------|
| A. The heating tank shall be insulated with a minimum of 1 1/2-inch (3.81 cm) thick high temperature ceramic insulation and covered by a 22 gauge steel outer wrapper. Fiberglass and rock wool insulation are unacceptable due to their moisture retention properties resulting in a significant loss in insulating value over an eighteen-month period. | _____ | _____ |
| Other: _____
_____ | _____ | _____ |

9. LOADING HATCHES

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|---|-------|-------|
| A. The low profile angled lid opening for loading shall be required at the top of the material tank and shall be located on the curb side of the machine for operator safety. This opening will also be easily adaptable for an addition of a retrofit power loading conveyor with anti-splash tower. | _____ | _____ |
|---|-------|-------|

	<u>Comply</u>	<u>Does Not Comply</u>
B. The loading height shall not be less than 53 inches (134.62 cm) for operator safety. Loading Heights below 50 inches (127 cm) may expose the operator to splash hazards and fume exposer when loading and are unacceptable.	_____	_____
C. The opening shall have a minimum area of 252 square inches (1,625 sq. cm), approximately 14 inches (35.56 cm) by 18 inches (45.72 cm) and shall be hinged to allow placement of a block of sealant onto the lid and closure of lid for easy, anti-splash loading.	_____	_____
D. The loading door will allow the operation of the equipment, including sealant loading, from curbside. Loading systems that require the operator to step onto the melter are unacceptable.	_____	_____
E. The loading door will have an insulated handle for opening and closing while the unit is hot.	_____	_____
Other: _____ _____	_____	_____

10. HEATING SYSTEM

A. The heat transfer oil is heated by one 250,000 BTU high efficiency forced air diesel fired burner directly at the bottom of the heat transfer oil tank	_____	_____
B. The burner shall fire into an easy access removable burner combustion box. The box will be insulated by a high temperature flexible insulation that is resistant to damage from the vibration and over road travel. Rigid insulation is unacceptable.	_____	_____
C. The total area of the heat transfer oil tank exposed to the burner shall be a minimum of 5,011 square inches (31,289 square cm). The material tank shall have a minimum of 4,810 square inches (30,552 square cm) of contact with the transfer oil. This provides for a melt rate of 1,056 pounds (479 kg) per hour.	_____	_____
D. The burner shall be lit by a constant duty high voltage transformer powering an electric spark igniter. This igniter shall work in conjunction with a sensor that detects a lack of burn or ignition and shuts down the fuel supply.	_____	_____
E. The burner shall be controlled by a thermostat control located on the rear curbside of the machine and shall have a toggle switch shut off for operator safety.	_____	_____
Other: _____ _____	_____	_____

11. INTEGRATED CONTROL SYSTEM

A. The melter applicator shall have a thermostatic control device that will automatically regulate each the hot oil and material temperature.	_____	_____
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	<u>Comply</u>	<u>Does Not Comply</u>
B. The control shall have digital readouts for temperatures of hot oil, material, and pumping temperature.	_____	_____
C. The controls shall operate at temperature ranges needed for proper application of sealants.	_____	_____
D. The control shall be activated by a single power switch.	_____	_____
E. The control will have fully integrated electric over hydraulic lockout for the agitation system, which prevents the agitator from being powered until the material temperature reaches 275°F (135°C). This prevents hydraulic system damage caused by overheating of hydraulic oil and reduces wear.	_____	_____
F. The control shall have a fully integrated electric over hydraulic lockout for the pumping system, which will prevent the pump from being powered until the material temperature reaches 275°F (135°C). This prevents hydraulic system damage caused by overheating of hydraulic oil and reduces wear.	_____	_____
G. All control including the engine operation shall be contained in a single weatherproof control box located at the rear curb side of machine for operator's safety and convenience. Any operational controls located at the side or forward portion of the trailer are unacceptable.	_____	_____
Other: _____ _____	_____	_____

12. AGITATION

A. The sealant material shall be mixed by a hydraulically driven, full sweep vertical agitator with two opposing horizontal paddles and vertical risers attached to the ends shall mix the sealant material at an ASTM specified tip speed of 250 ft. /min. Variable speed agitation is unacceptable.	_____	_____
B. The agitator drive shaft shall stand vertically attached to a hydraulic motor on the top surface of the tank.	_____	_____
C. The surface area of the agitator paddles shall be a minimum of 280 square inches (1806.44 square cm). Surface areas of less than 100 square inches (903.22 square cm) are unacceptable.	_____	_____
D. The agitation system shall be direct driven by a hydraulic motor.	_____	_____
E. The agitator shall rotate in either direction.	_____	_____
F. For additional safety the agitator will shut off automatically when either loading hatch is opened.	_____	_____
Other: _____ _____	_____	_____

<u>Comply</u>	<u>Does Not Comply</u>
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13. BI-DIRECTIONAL VARIABLE SPEED PUMPING UNIT

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| A. The material pump shall be a 2 inch (5.1 cm) positive displacement helical gear pump rated at 20 GPM. | _____ | _____ |
| B. Applicator, Recirculation, and Tank valves are heated by an enclosed insulated chamber | _____ | _____ |
| C. Heat flow to this chamber shall be controlled with a slide gate that will separate this chamber from the tank air jacket. | _____ | _____ |
| D. The insulated heating chamber shall have insulated doors hinged and notched for sealant hose access. | _____ | _____ |
| E. The heating chamber shall have a removable rear panel for easy access to the pump. | _____ | _____ |
| F. The heating chamber shall provide storage for sealant hose. | _____ | _____ |
| G. Pumping of material is controlled by a switch in the control box and output is controlled hydraulically. | _____ | _____ |
| H. The pump shall be capable of delivering sealant at a rate that exceeds the melt rate of the unit. | _____ | _____ |

14. SEALANT HOSE AND APPLICATOR WAND

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|---|-------|-------|
| A. Unit shall have a non-heated hose and wand applicator. | _____ | _____ |
| B. The hose is supported by a 7ft. 2 in. boom (2.18m), which swivels side to side on dual pillow block bearings. The hose carriage shall pivot and have 7ft. (2.13m) of horizontal linear movement on roller bearing wheels for further operator comfort. | _____ | _____ |
| C. There shall be a minimum of 6ft. 6in. (1.98m) clearance under boom. Fixed carriage hose booms are unacceptable as they do not allow for easy maneuverability. | _____ | _____ |

Other: _____

Non-Heated Hose and Wand

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|---|-------|-------|
| 1. The hose shall be specifically manufactured for handling liquid asphalt products up to 400°F (204.4°C) at 350 psi (24.13 bar) working pressure. | _____ | _____ |
| 2. Hose and wand shall not be less than 23 feet (7.01 m) in length. The hose and wand shall have a working radius of 16 feet 6 inches from the center of the machine. | _____ | _____ |
| 3. A digital readout displays the temperature of material being pumped through the hose. | _____ | _____ |

	<u>Comply</u>	<u>Does Not Comply</u>
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4. The hand wand shall be constructed of steel with sufficient strength to withstand normal day to day operation. For greater operator mobility, the connection between the wand and hose shall be through a 360° swivel.

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5. Material flow is activated by a toggle switch in the control box and is controlled by a ball valve on the wand and recirculation valve.

	_____	_____
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6. For maximum operator safety it shall be made of 1 inch (2.54cm) inside diameter insulated, rubber coated, steel braid reinforced and neoprene lined.

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Other: _____

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15. ENGINE

The unit shall be equipped with a diesel engine complying with the following specifications:

- Electric Start
- Three Cylinder 25.4 HP (18.94kw) @ 3000 RPM, Tier 4 Final Emissions
- 3.14" (79.7 mm) Stroke
- Constant Speed Mechanical Governor
- 68.6 Cu. In, (1.12l) Displacement
- Full Flow Oil Filter
- 3.05" (77.4 mm) Bore
- 22 to 1 Compression Ratio
- Water Cooled

	_____	_____
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Other: _____

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16. FUEL CAPACITY

- A. The melter shall have a 30 gallon (113.56 l) diesel fuel tank for operation of the entire unit.
- B. The unit will be capable of operating for a minimum of 12 hours on one tank of fuel.
- C. The tank shall be equipped with a full length sight gauge for fuel level indication protected in a steel cover

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Other: _____

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17. PAINT

- A. All painted surfaces shall be coated with DuPont two part epoxy paint applied by DuPont certified painters

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Other: _____

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<u>Comply</u>	<u>Does Not Comply</u>
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18. TRAINING

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|--|-------|-------|
| A. An authorized, factory representative will be made available for a full day of training at a facility designated by the bidding agency. | _____ | _____ |
| B. At this training session a complete operational, mechanical and safety overview will occur. | _____ | _____ |
| C. Both safety and operational manuals will be viewed and discussed with all concerned personnel. | _____ | _____ |
| D. Additionally, the representative will be available at that time for "on the job" safety and field training. | _____ | _____ |
| Other _____
_____ | _____ | _____ |

19. SAFETY AND TRAINING MANUALS

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|--|-------|-------|
| A. A written Safety Manual will be provided to the bidding agency. | _____ | _____ |
|--|-------|-------|

20. PARTS

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|---|-------|-------|
| A. Bidders must show proof that a large stock of parts for the model of equipment upon which he is bidding is maintained at his facility. | _____ | _____ |
|---|-------|-------|

21. AWARD

- | | | |
|---|-------|-------|
| A. Equipment is for use by the Highway Department and must meet the requirements of that agency as interpreted by the Highway Commissioner. | _____ | _____ |
| B. Prior to award the Purchasing Agency may require a visit to the supplier's facility to assure supplier has plant capacity to manufacturer and deliver equipment on time as required. | _____ | _____ |
| C. If it is determined that the supplier cannot supply as requested, this is just cause for cancellation. | _____ | _____ |

22. WARRANTY

- | | | |
|--|-------|-------|
| A. The manufacturer shall warranty the equipment for one year or longer as otherwise noted in the manufacturer's standard warranty policy. | _____ | _____ |
|--|-------|-------|

23. QUALIFICATIONS OF BIDDER

- | | | |
|--|-------|-------|
| A. No bid will be considered unless the bidder can meet the following conditions: | _____ | _____ |
| B. Bidder must have a parts/service location and keeps a sufficient stock of parts on hand at all times. | _____ | _____ |

<u>Comply</u>	<u>Does Not Comply</u>
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- | | | |
|--|-------|-------|
| C. The equipment offered is the stock model chassis that meets the requirements of the specifications without material changes or modifications. | _____ | _____ |
| D. The model is regularly advertised and sold by the manufacturer. | _____ | _____ |
| E. The bidder has been engaged in the sale and support of this make and model of equipment for at least twenty-four months. | _____ | _____ |

OPTIONS REQUIRED (X if to be included)

(Customer to insert quantity for each option required)

- _____ 2-5/16 inch (5.9cm) Ball Hitch
- _____ 3 inch (7.6cm) Pintle Hitch
- _____ 18" (45.7 cm) Hitch Extension
- _____ 28" (71.1 cm) Hitch Extension
- _____ 39" (99.1 cm) Hitch Extension
- _____ Dripless Sealant Tip Adapter
- _____ 3 inch (7.6cm) Swivel Applicator Disk
- _____ 4 inch (25.8cm) Swivel Applicator Disk
- _____ 1/2" Round Sealing Tip
- _____ Heavy Duty Metal Handle V-shaped Squeegee (Qty. _____)
- _____ Wooden Handle V-shaped Squeegee (Qty. _____)
- _____ Extra Electric Hose
- _____ Non-Heated Hose and Wand
- _____ Extra Hydraulic Filter
- _____ Lockable Battery Cover
- _____ Lockable Engine cover
- _____ Fire Extinguisher mounted on the Trailer Frame
- _____ Toolbox
- _____ Mast Mounted Strobe Light, Class II.
- _____ Mast Mounted Strobe Light, Class I/CA Title 13
- _____ 18ft. Electric Hose Option
- _____ Auto Loader
- _____ Overnight Heater

APPROVED EQUAL

The approved make and model for this specification is a Crafc0 EZ 500. Bidders offering to supply equipment other than the approved make and model must supply a detailed description of the equipment being offered. Bidders offering to supply equipment other than the approved make and model shall also supply a list of references who have successfully heated, mixed and applied Crafc0 sealants through the equipment being offered. For purposes of comparison a separate list of all deviations to this specification must be attached to your bid document.

Prior to bid award an on-site demonstration of the equipment offered may be requested. All bidders offering other than the approved model listed will be required to provide an on-site demonstration at the agency's location within 7 days of request to verify that their unit complies with all specification requirements before their bid will be considered. Failure to carry out the provisions noted herein is deemed sufficient reason to reject the bidder's proposal.